

SUMMARY

BIOLOGICAL OPINION ON THE EFFECTS TO LITTLE COLORADO SPINEDACE FROM PROPOSED BANK STABILIZATION ON THE LITTLE COLORADO RIVER SOUTH OF ST JOHNS, APACHE COUNTY, ARIZONA

Date of opinion: March 31, 1998

Action agency: U.S. Army Corps of Engineers

Proposal: Issuance of a permit under section 404 of the Clean Water Act to place approximately 180 feet of rock rip-rap along a bank of the Little Colorado River to protect a fiber optic cable right of way.

Listed species: Little Colorado spinedace (*Lepidomeda vittata*)

Biological opinion: Non-jeopardy

Incidental take statement:

Level of take anticipated: It is anticipated that the action would take five adult and/or juvenile spinedace. Additionally, spinedace habitat downstream of the project area may be affected by changes in flow patterns resulting from the implementation of the proposed action.

Reasonable and prudent measures: Two RPMs are included in the document. The first deals with reducing the number of spinedace potentially in the designated project area. The second deals with assessing the downstream effects of implementing the proposed action.

Terms and conditions: To implement RPM 1, the river will be blocked upstream and downstream of the project area and the isolated area surveyed for spinedace. All spinedace found will be removed and placed upstream of the block. At least once per day during construction, the downstream block will be checked for the presence of dead fish. At the end of the construction period, the blocks will be removed by workers working from the isolated area. To implement RPM 2, a photographic record of physical conditions along the channel and banks of the river at least one half mile downstream will be made prior to construction. For a minimum of five years after the construction is completed, new photographs at the same sites will be taken annually and a report provided to the Service.

Conservation recommendations:

There were no conservation recommendations identified for this project.

**United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021
Telephone: (602) 242-0210 FAX: (602) 242-2513**

AESO/SE
2-21-97-343

March 31, 1998

Ms. Cindy Lester
Chief, Arizona Section, Regulatory Branch
U.S. Army Corps of Engineers
3636 North Central Avenue Suite 760
Phoenix, Arizona 85012-1936

Dear Ms. Lester:

The Fish and Wildlife Service reviewed your request for consultation and its attached environmental evaluation (EE) for the proposed AT&T Erosion Control Project at St. Johns, Apache County, Arizona. Your January 27, 1998 request was received on January 28, 1998. This document represents the Service's biological opinion on the effects of the action on the threatened Little Colorado spinedace (*Lepidomeda vittata*) in the Little Colorado River in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA), (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in your November 1997, EE, additional information provided by the project consultant on March 3, 1998, literature available on the spinedace and other sources. A complete administrative record of this consultation is on file in this office. Literature cited in this opinion is not a complete bibliography of all literature available on the species of concern, hydrology of rivers or other subjects considered in this opinion. Literature cited is limited to that necessary to document the effects of the proposed project.

CONSULTATION HISTORY

The consultant hired by the proponent contacted the Service on July 31, 1997 to request a list of species found in the area of the proposed project. The Service provided this list on August 5, 1997. Additional material was provided to the consultant on October 31, 1997. A copy of the EE was sent to the Service on November 4, 1997. The Corps of Engineers requested formal consultation with the Service in a letter dated January 27, 1998, that was received by the Service on January 28, 1998. The Service reviewed the materials provided and wrote to the Corps requesting additional information on the project. This material was provided on March 3, 1998. As requested by the Corps, a draft biological opinion was provided to you on March 12, 1998. The Service received your March 26, 1998, response to the draft biological opinion on March 27, 1998.

The request from the Corps indicated the potential for effects to the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) from the proposed action. After review of the project and the potential for effects to this species, the Service and the Corps discussed the appropriate finding for the flycatcher. The Corps requested in their letter of (blank), 1998, that the Service concur with a finding of may affect, not likely to adversely affect. The Service does

concur with this finding, conditioned on the placement of stipulations in the 404 permit that would not allow construction to occur during the breeding season of the flycatcher (June 1 to September 1). The Service concurs with this finding.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action involves the placement of 180 feet of rip-rap along the southwest bank of the Little Colorado River upstream from the town of St. Johns in Apache County, Arizona. The stabilization is intended to protect a buried fiber-optic cable in an existing right of way adjacent to the river. Since the right of way was established, the river has migrated to the west resulting in the bank beginning to encroach into the right of way. No organized or approved bank stabilization has been done in the area, however, the adjacent landowner has placed a variety of large objects into the river to protect the bank from further erosion. None of these have been successful. The proposed action would alter the existing bank slope to a 1:1 grade at the bend and for a distance up and downstream to total 180 feet.

The construction of the proposed project would involve the use of heavy equipment on top of the existing bank to remove material for shaping the bank and creating the toe for the rip-rap. Rock would also be placed on the slope from above. Construction activities in the river channel will be required as the live channel is against the cutbank. Removal of materials will result in increased sediment and the project plans for sediment fences at 50 and 100 feet downstream. These fences would be placed by workers in the channel. Workers would also be in the live channel to lay the geotextile material over the slope prior to placement of the rip-rap. Work in the live channel carries the potential for take of spinedace through direct mortality as well as harassment.

The project is located in an area of juniper grasslands and rolling hills. The Little Colorado River through the project and surrounding area is an incised stream whose flow is significantly controlled by discharges from Lyman Lake. There is an alluvial "floodplain" along the rivercourse and migration of the river within this floodplain would be expected to occur naturally. Behavior of the river in this regard has been altered by the presence of the upstream dams and diversions of water that have altered the natural hydrograph.

At the site of the proposed action, there is a bend in the river with the concave shore on the south side. The cutbank is eight to ten feet high at this point. This bank is the one eroding toward the fiber optic cable right of way. The channel here is sinuous, with bars opposite the concave banks. To some extent, vegetation has stabilized the channel downstream although depositional bars are still visible. As would be expected, the deepest part of the existing channel is at the base of the concave bank.

STATUS OF THE SPECIES

The spinedace was listed as a threatened species on September 16, 1987. Critical habitat was designated for portions of East Clear Creek, Chevelon Creek, and Nutrioso Creek. At the time of listing, populations of the species were known from the East Clear Creek drainage, lower Chevelon Creek, Silver Creek, Nutrioso Creek and portions of the Little Colorado River. Since that time, an additional population was located in Rudd Creek, a tributary to Nutrioso Creek. Also, it was assumed that the Silver Creek population had been extirpated until it was rediscovered in 1997. The recovery plan for this species was published in February, 1998.

The spinedace is one of four species of the genus *Lepidomeda* in the tribe Plagopterini of the family Cyprinidae. One of these species is now extinct. The Plagopterini also contains two

monotypic genera, *Meda* and *Plagopterus*. The Plagopterini are restricted to portions of Arizona, Nevada, New Mexico and Utah (LaRivers 1962, Lee *et al.* 1980, Minckley 1973). Uyeno and Miller (1973) evaluated the karyotypes of the five remaining Plagopterini species and determined that *Meda* and *Plagopterus* are more closely related to each other than to the *Lepidomeda* species, and that the spinedace was more distinctly different from the other two surviving *Lepidomeda* evaluated and probably arose earlier.

Although information on spinedace genetics is not complete, preliminary information suggested the presence of three sub-groups identifiable by geographic area (Tibbits *et al.* undated). The East Clear Creek drainage formed one subgroup, Chevelon Creek the second, and the Little Colorado River-Nutrios Creek-Rudd Creek drainage the third. There were no samples available for Silver Creek in this research. The study concluded that the genetic patterns seen were likely the result of populations being isolated and differentiated by stochastic events. The East Clear Creek and Chevelon Creek sub-groups were more individually distinctive, likely the result of a higher degree of isolation and possess unique haplotypes. Individuals from the Little Colorado River sub-group are more similar and possibly there was, until very recently, one population mixing freely in this drainage. Construction of dams and diversions increased local isolation in this population.

The spinedace was first described in collections made in 1871-1874 from the Little Colorado River drainage by the Wheeler Survey and was formally described in 1874 by E.D. Cope (Miller and Hubbs 1960). It is a small fish, adult males and females are generally less than 100 millimeters (mm) in total length and there is little size differentiation between the sexes, although females may on average be longer than males. The back and upper sides are olivaceous, bluish or lead grey with the venter being white and the sides silver with vertical black lines (Miller 1963).

The spawning period for spinedace is from May to June or July (Blinn 1993, Blinn and Runck 1990, Miller 1961, Minckley 1973, Minckley and Carufel 1967) although some females have been found to contain mature eggs as late as October (Minckley and Carufel 1967). Information from spinedace kept in a pond at the Flagstaff Arboretum indicate that adults there spawned three times in 1993 and 1994 (Blinn *et al.* 1994) but it is not certain if individual females spawn more than once.

Aquatic and terrestrial insects form the basis of the spinedace diet (Runck and Blinn 1993), but they will also consume algae and detritus (Blinn and Runck 1990, Minckley and Carufel 1967). Spinedace are opportunistic feeders, using whatever is seasonally available and foraging may take place in the water column and on the bottom.

As with most aquatic habitats in the southwest, the Little Colorado River basin contained a variety of aquatic habitat types and was prone to rather severe seasonal and yearly fluctuations in water quality and quantity. Both mountain streams and lower gradient streams and rivers have provided habitat for the spinedace (Blinn and Runck 1990, Miller 1963, Miller and Hubbs 1960, Nisselson and Blinn 1989). It is not certain whether occupancy of a specific habitat reflect the local preferences of the species, reflects what is available for occupancy in the area or is the result of the spinedace's ability to tolerate less than optimal conditions. Suitable habitat identified in the literature includes clear and turbid water conditions, pools of moderate depth with flowing water and containing cover in the form of rocks, detritus or aquatic plants and a variety of substrates, and lotic sections of streams with moderate velocity currents. Pools are an important resource in streams that become intermittent during dry periods.

Current status of the spinedace throughout its range is not satisfactory. Alteration of habitats and the introduction of non-native fish and invertebrates that prey on or compete with spinedace have been identified as reasons for the decline of the species. The East Clear and Chevelon Creeks

populations are very small and fragmented. The size of the relocated Silver Creek population is not known, but is not likely robust. Portions of the Little Colorado River complex are more stable, and recent land acquisitions by Arizona Game and Fish Department may provide some additional habitat protection for some of the groups of fish. A revision of the spinedace's listing as threatened is not warranted at this time, but if populations continue to decline, this may be reevaluated.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State and private actions in the action area, the anticipated impacts of all proposed Federal actions in the action areas that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Status of the Species in the Action Area

Spinedace have been reliably found in the Little Colorado River at an established survey site within approximately one half mile downstream (north) of the project area. Other records exist for south of Lyman Lake (1995) upstream of the project site and north of St. Johns (1993) downstream of the site (AGFD 1995).

Flows in the Little Colorado River through the project area are controlled by upstream dams and diversions. Lyman Lake is the nearest water storage facility and releases water to the Little Colorado River as well as to the Lyman Canal. A small diversion dam approximately a mile upstream of the project area takes much of the released water from the river channel. Remaining flows are seasonally augmented by runoff from uncontrolled washes in the area and any agricultural return flows. There are no currently active U.S. Geological Survey streamflow gages in the St. John's area. Examining available records from inactive and active gages bracketing the project area, indicates that some flow passes through the project area for most of the year. Because of the storage available at Lyman Lake, spring runoff events are largely captured, although the historic record shows spills from the reservoir in the April to May period in several years (USGS 1982), which corresponds to the spring runoff period. Flows above Zion Reservoir, downstream of the project area show an increase in flows over those released from Lyman Lake for the same period during the spring runoff (USGS 1982). This information indicates that spinedace habitat is likely to be present throughout this section of the Little Colorado River.

The spinedace has been known from the vicinity of the project area since at least 1983. Three collections have been made at the established survey site (1991, 1993, 1994, and 1995) with spinedace making up between 90 and 46 percent of the catch. The remainder of the catch was dominated by other native fish species (AGFD 1995). Habitat sampled was dominated by shallow runs.

Examining all the survey data presented by AGFD (1995), while the numbers of spinedace at the south of St. Johns site are not remarkably higher than at the other 19 sites, there is a significant difference in the percentage of spinedace in the total catch of all fish species at the site. In the 1993, 1994 and 1995 surveys, spinedace at the St. Johns site made up a larger portion of the total catch than at any other survey site. The reason for this is unclear and may relate to the lower numbers of non-native fish present at St. Johns. However, the reason for the lower numbers of non-natives at this location is equally unclear and may, perhaps, be a function of habitat conditions.

There have been no formal section 7 consultations for federal activities in the vicinity of the

proposed action that provide a baseline for evaluation of the current project. The surrounding land is primarily private ownership and there are no large federally funded programs that would have triggered consultation requirements.

Effects of the Action

This section addresses the proposed action's effects on the species under consultation. It also considers cumulative effects on these species in the action area, which include effects of future State, local, tribal, and private actions that are reasonably certain to occur in the near future. Future Federal actions that are unrelated to the proposed action are not considered here because they would require separate consultation pursuant to section 7 of the ESA.

The effects of the action can be broken down into two categories. The immediate, no-site direct effects and the downstream indirect effects. These will be discussed separately as they involve different types of effects.

Given the proximity of the proposed project area to the permanent spinedace survey site downstream, and that there are no obvious barriers between the two, the Service must assume that individuals of the spinedace are in the Little Colorado River in the project area. There is no extant survey information to prove or disprove this assumption, and given the ability of the spinedace to invade and abandon specific localities within days of being located, the existence of any past surveys would not clarify the issue. Spinedace are known to use both pool and run habitats, both of which are present in the project area and would be affected by the construction. Although the equipment would operate from the bank, digging out the trench for the toe of the rip-rap will require excavating in the pool and possibly in the live stream reaches of the river. In addition, placing the geotextile fabric will require workers to stand in the stream to place the fabric on the slope and secure it. Deposition of rock rip-rap could also kill or injure individual spinedace. Further, workers will be in the river to place silt fences downstream of the project area and this placement also has a risk of killing or injuring spinedace. Depending upon the season of year the construction is undertaken, there may be an additional risk to eggs or larval spinedace from these disturbances to substrates and trampling. These effects are of limited duration and would cease once construction was completed and workers and equipment were removed.

The indirect downstream effects are more difficult to quantify. The flows in the Little Colorado River have been severely affected by the upstream dams and diversions. How these changes have affected the river's normal behavior, especially in meandering across the bottomlands, has not been defined. It is also unknown if the river has achieved equilibrium for the current flow conditions. What can be assumed is that some river processes are functioning normally since in a sinuous or meandering river, erosion of banks on the outside of bends and the deposition of material on the inside is how the river moves across the bottomlands. The ability of the river to erode the banks is a measure of both the materials making up the bank and the hydraulics of the flow past the area.

The result of placing rip-rap against an eroding bank at the concave side of a bend is a reduction in the velocity of the water against the bank through increased resistance to flow. Depending upon the amount of change in water velocity, sediments may be deposited along the bankline or additional sediments may be removed from the area of the channel by increased velocities away from the stabilization. The location of the thalweg, the deepest point of the channel, is likely to change as a result. The removal of sediment may cause a deepening of the channel, which is one reason why the toe of the rip-rap is buried under the existing level of the channel bottom. Slowing the flow against the stabilized bank causes changes in water velocities and alters the

direction of the flow and thus how it is directed against banks and bars downstream. The magnitude of the change is a function of many different variables including flow, velocity, and channel morphology. The distance downstream the effects are felt is also a function of the same variables.

The placement of bank stabilization may also affect upstream reaches if there is an increase in velocity at the site of the work. Channel deepening or changes in flow direction are possible in the immediate area. Changes in flow direction would be especially of concern if they increased the risk of eroding out behind the upper end of the stabilization.

Placement of bank stabilization projects without referencing the causes of the "problem" may have limited long term success. The Little Colorado River through the vicinity of the project area is not stabilized and has some degree of natural function, including active meandering. The proposed project will have effects downstream for some unknown distance that would alter whatever equilibrium the existing bends and bars have achieved. The size of the project is not large so it would be hoped that the extent of this disturbance would not be large. The reduction in sediment inflow from the protected bank is likely negligible given the existing situation.

Effects to the spinedace from these channel changes are difficult to quantify. In a dynamic system, the types of changes anticipated are within the normal range of potential variability. The types of habitats available will not change overall, although the specific location of such habitat features may shift. The existing river does not appear to favor non-native fish species and changes that favor non-natives would be extremely detrimental to the spinedace.

If the downstream changes to flows and channel morphology resulting from the project cause erosion problems at other locations that then require stabilization, the effects of the initial project are magnified by the subsequent actions.

There is one type of indirect effect of the proposed project that contains elements covered by this consultation and by future Federal actions that would require separate consultation. The placement of the rip-rap on the river bank is the action under consultation. However, once the project has been completed, should that rip-rap be damaged by a flood event, there are other Federal programs that provide funding to repair the damage back to pre-flood condition. The Federal Emergency Management Agency (FEMA) is one such agency. Because of the limits placed on how and what FEMA may do in such circumstances, any damage to the rip-rap would likely be replaced in kind, therefore continuing the indirect effects of the action in perpetuity and, depending upon construction and live stream placement, direct effects as well.

Interrelated and Interdependent Effects

Interrelated and interdependent effects are those effects of other projects dependent upon the proposed action for their existence. No effects of this type have been identified.

Cumulative Effects

The lands surrounding the project area are largely in private ownership. The dams and irrigation facilities that control water flows are also privately owned. Growth and increasing urbanization in the St. Johns area is expected at some level in the foreseeable future, but significant changes are not immediately expected. Development along the Little Colorado River for additional homesites is not under Federal control, however, the placement of bank stabilization to protect those properties is a Federal action under section 404 of the Clean Water Act and thus would not be addressed here.

CONCLUSION

After reviewing the current status of the spinedace, the environmental baseline for the project area, the effects of implementing the proposed action and the cumulative effects, it is the Service's biological opinion that the project, as described in the EE and this opinion, is not likely to jeopardize the continued existence of the spinedace. No critical habitat is found within the project area so no finding addressing adverse modification is needed.

INCIDENTAL TAKE

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding and sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Some amount of direct take of individual spinedace is likely to occur during the construction period due to trampling and use of heavy equipment to dig out and shape the area for stabilization. Using information from the surveys taken downstream of the project area, an average of 11 spinedace per 200 meters is obtained (AGFD 1995). The project area is at most 280 feet long, approximately half the length of the survey sites. Based on this information, the Service anticipates that five adult and/or juvenile spinedace may be taken as a result of the proposed project.

Take that occurs due to harm or harassment is more difficult to quantify because it is based on the magnitude and types of downstream effects of the project on spinedace and their habitat. If the project is placed correctly and is an appropriate solution to the problem, the rip-rap stabilization should not fail during a high-water event. Nor should additional "problems" develop downstream as a result. Based on this, the amount of take under this heading is anticipated to be confined to minor alterations in downstream flow with subsequent minor changes to channel configuration and existing erosional patterns. The specific location of bars, bends, pools, riffles and runs may change slightly, but the overall percentage of these features within the system will not change.

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the spinedace.

REASONABLE AND PRUDENT MEASURES

A reasonable and prudent measure (RPM) is an action consistent with a proposed project's basic design, location, scope, duration, and timing. An RPM cannot cause more than a minor change to the project. Determining appropriate RPMs for the proposed action is focused on reducing the amount of take that occurs due to the implementation of the project.

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize take of the spinedace:

1. Measures will be taken to reduce the number of spinedace within the designated project area.
2. Measures will be taken to assess the downstream effects of implementing the proposed action.

Terms and Conditions:

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal agency and/or the applicant must comply with the following terms and conditions, which implement the RPMs described above. These terms and conditions are non-discretionary.

1. To implement RPA 1:
 - a. Prior to any construction activity, the upstream and downstream limits of the project area will be blocked to prevent fish access, then the area will be checked (seining, electrofishing) by qualified biologists for the presence of spinedace. All spinedace and other native fish species found will be placed back into the river upstream of the blocks. The downstream boundary will be located where the 100 foot sediment fence is placed.
 - b. At least once per day during the active construction period, the downstream block will be checked to see if any dead or injured fish have been washed downstream. A count of all fish found, native and non-native, will be kept. The person doing the checking should be familiar enough with the spinedace to recognize it easily.
 - c. At the end of the construction period, the blocks will be removed by workers working from the inside of the construction area.
2. To implement RPA 2:
 - a. Prior to construction, a photographic record of the physical conditions along the banks and channel of the river from the project site downstream at least one half mile will be made.
 - b. At least once a year, the condition of the rip-rap will be evaluated and any obvious changes to the channel morphology recorded at the site and for one half mile downstream. Photographs will be taken at the same sites as in 2(a) to document changes. This will be done for a minimum of five years and an annual report will be provided to the Service that includes the information from the evaluation and copies of photographs.

The Service understands that term and condition 2(b) requires efforts to be made after the project is completed. However, we believe that this is appropriate and possible for the applicant to do given that the integrity of the rip-rap is critical to the protection of their fiber optic cable. Maintenance and monitoring should be part of the proposed project regardless of this incidental take statement.

Disposition of Dead, Injured, or Sick Individuals of a Listed Species

If a dead, injured, or sick individual of a listed species is found in the action area, initial notification must be made to Service Law Enforcement, Federal Building, Room 105, 26 North McDonald, Mesa, Arizona 85201 (Telephone: 602/835-8289) within three working days of its finding. Written notification must be made within five calendar days and included the date, time and location of the finding, a photograph of the animal, and any other pertinent information. The notification will be sent to Law Enforcement with a copy to the Arizona Ecological Services Field Office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. If possible, the remains shall be placed with educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place. Arrangements regarding proper disposition of potential museum specimens shall be made with the institution proper to implementation of the action. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should any treated animals survive, the Service will be contacted regarding the final disposition of the animals.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has not identified any conservation recommendations for the proposed action.

REINITIATION-CLOSING STATEMENT

This concludes formal consultation on the actions outlined herein. As provided in 50 CFR§402.16, reinitiation of formal consultation is required when discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to and extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this biological opinion, please contact Ted Cordery or Lesley Fitzpatrick in our office.

Sincerely,

/s/ Jennifer Fowler-Propst
Acting Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ES)

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